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Brooks, T., & Spillane, J. (2016). Does Inappropriate Quality Control Demotivate Workers. In *Proceedings of the 32nd ARCOM Annual Conference, 2016* (pp. 871-880). Association of Researchers in Construction Management. <http://www.arcom.ac.uk/abstracts-results.php?s=32nd%20Annual%20ARCOM%20Conference&v=&i=&b=b&p=12855#12855>

Published in:

Proceedings of the 32nd ARCOM Annual Conference, 2016

Document Version:

Publisher's PDF, also known as Version of record

Queen's University Belfast - Research Portal:

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DOES INAPPROPRIATE QUALITY CONTROL DEMOTIVATE WORKERS? A CRITICAL REVIEW

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The construction industry requires quality control and regulation of its contingent, unpredictable environment. However, taking too much control from workers can disempower and demotivate. In the 1970s Deci and Ryan developed self-determination theory which states that in order to be intrinsically motivated, three components are necessary - competence, autonomy and relatedness. This study aims to examine the way in which the three 'nutriments' for intrinsic motivation may be undermined by heavy-handed quality control. A critical literature review analyses construction, psychological and management research regarding the control and motivation of workers, using self-determination theory as a framework. Initial findings show that quality management systems do not always work as designed. Workers perceive that unnecessary, wasteful and tedious counter checking of their work implies that they are not fully trusted by management to work without oversight. Control of workers and pressure for continual improvement may lead to resistance and deception. Controlling mechanisms can break the link between performance and satisfaction, reducing motivation and paradoxically reducing the likelihood of the quality they intend to promote. This study will lead to a greater understanding of control and motivation, facilitating further research into improvements in the application of quality control to maintain employee motivation.

Keywords: human resources management, motivation, quality control

INTRODUCTION

Quality management has become 'reified' and accepted as rational 'best practice,' ignoring the potential downsides and ethical implications of implementation (Hodgson and Cicmil 2007). Observation and measurement creates power asymmetry that renders actions "visible, calculable and above all, manageable" (McKinlay *et al.*, 2010, 1015-16). Control can be amplified through 'identity regulation' (Alvesson and Willmott 2002) which manipulates the subject's 'self-construction.' These techniques are ostensibly rational, objective and their definitions and categorisations have been widely accepted and therefore legitimised (Hodgson and Cicmil 2007).

This rationalisation and creation of the 'governable person' started with Taylor's scientific method of management (1947) which suggested that previous ad hoc methods of controlling the industrial workforce were inadequate and that a new, 'scientific' approach should be taken. This system depends on measurement and observation of the performance of every employee, who is rewarded or penalised accordingly. Taylor advocated that "A high priced man has to do exactly as he's told

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from morning till night” (Taylor 1947, 45). Wolin (1960, cited Fry 1975) suggested that Taylorism was anti human, subordinating social standards to production schedules. Taylorism failed because it distrusted workers and was based on excessive control (Styhre 2001).

Foucault conceives of autonomy as constrained by systems and society (Wong, 2010); whereas self-determination theory takes an organismic, humanistic approach describing autonomy as being the perceived source of your own actions, although this is influenced by your environment. This study, using self-determination theory as a framework, takes a different perspective than that of Foucauldian studies of regulation and control. Self-determination theory explicitly rejects Skinnerian behaviourism, which finds that man is a product of the stimuli in his external environment, holding that free will exists. The concepts of autonomy, relatedness and competence at an individual level are central to self-determination theory. Taking the extreme example of Taylorism demonstrates how control at work may undermine these psychological 'nutriments' indicating the potential use of self-determination theory as a framework to cast light from a new perspective on control and regulation.

Construction is highly contingent and unpredictable (Clegg *et al.*, 2002; Till 2007) hence some degree of regulation is required over the people who try to control this environment, to ensure compliance with laws and regulations (Christ *et al.*, 2012). The research question is, when does regulation and control reduce autonomous motivation and hence become counterproductive. This knowledge can then be used to improve the application of quality control in such a way that it nurtures and supports workers' motivation. Foucauldian thinkers (Alvesson and Willmott 2002; Clegg *et al.*, 2002; Hodgson 2005; Hodgson and Cicmil 2007; McKinlay *et al.*, 2010) examine power and control at a system level in organisations, but do not approach the subject from the perspective of self-determination theory. Self-determination theory and the relationship between control and motivation has been applied to the fields of sport, healthcare, education, parenting, politics and religion (Deci and Ryan 2011) but little research has been undertaken in construction management, a research gap which this study aims to fill.

RESEARCH METHOD

This paper uses self-determination theory as a framework for examination of the control and motivation of workers. This theory has been developed over three decades and proven through empirical validation (Gagne and Deci 2005). 58 papers are selected from peer reviewed sources which best meet the inclusion and exclusion criteria. Inclusion criteria incorporate papers from fields outside construction, including studies of self-determination theory; ISO 9001 quality control; quality control compliance, resistance to management processes, deception; ISO 9001 auditing, feedback, and continual improvement. Exclusion criteria comprise non-peer reviewed work, a number of studies with a high degree of cross pollination and repetition, and ultimately conference paper constraints. The identified literature is coded using NVivo software against the headings of assessment and auditing, feedback, continual improvement, deception, competence, relatedness and autonomy in order to synthesise and explore the relationships outlined below.

The framework: Self-determination theory

Self-determination theory suggests that one can be motivated to undertake an interesting task for its own sake. Motivation involves activation, energy, intensity, persistence, direction (Ryan and Deci 2000). Motivation is “a cognitive

representation of a desired future state” (Deci 1975, 96) and work motivation “...a set of energetic forces that originate both within as well as beyond an individual’s being, to initiate work related behaviour, and determine its form, direction, intensity and duration” (Pinder 2008, 11). The self-determination movement takes a cognitive approach that assumes that active thought processes determine behaviour. This theory rejects mechanistic, behaviourist methods where humans are assumed to be predictable, controlled by external forces and will merely process and respond to external stimuli.

Deci (1975) used the work of DeCharms, White, Piaget and Maslow, Vroom's expectancy theory and his own observations to build his model of motivated behaviour. Intrinsic motivation occurs when an individual finds an activity satisfying in itself - when the activity is undertaken with no thought for external reward. It is thought to be innate as studies have shown that very young babies display intrinsic motivation (Deci 1975). The theory of intrinsic motivation starts with the concept that man has a number of basic psychological needs (competence, autonomy and relatedness) which are ‘essential nutriments’ to optimal psychological functioning (Deci and Ryan 2011, 19) and are universal. Environments which support these needs will enhance self-motivation and enhance well-being, social functioning and optimal development. Whereas not meeting a physiological need will lead to an increasing desire to meet it (for example an increased motivation to find food if hunger is not satisfied), an unsatisfied psychological need will lead to internal self defence mechanisms, withdrawing to protect oneself from the external environment, and potentially to poor mental and physical health (Deci and Ryan 2000).

In 2000, Deci and Ryan further refined their theory, suggesting that self-determination existed along a continuum, ranging from amotivation to intrinsic motivation. This continuum is useful when considering motivation in the context of work: few people are lucky enough to work for the love of the task, however it should be possible to move people further along the continuum towards more intrinsic motivation.

Perceived locus of causality and autonomy

‘Authentic’ motivation is activated by an individual in the absence of external pressure or control. When acting this way an individual is said to have an internal locus of causality. Studies show that external influences - whether criticism and negative feedback (Deci *et al.*, 1973), competition, threats (Deci and Cascio 1972), or even positive influences such as praise and monetary reward - can create a perceived external locus of causality, which undermines intrinsic motivation. It is difficult if not impossible to maintain intrinsic motivation when actions are being dictated by others and the individual feels like a pawn in someone else’s plan. This emerging hypothesis was confirmed by a meta-analysis of 128 experimental studies undertaken by Deci Koestner and Ryan in 1999.

Deci suggests that “rewards are generally used to control behaviour” (Deci 1975, 141). His experiments in 1972 show that when tasks started as intrinsically interesting ones but are subverted by external influence, the perceived locus of causality changes and intrinsic motivation decreases. Extrinsic rewards can make the subject feel like they are being manipulated and they feel much less the master of their own destiny (Deci 1975). If people are undertaking a task to receive an extrinsic reward (or to avoid a punishment), they will only continue with that task as long as the reward is offered or punishment threatened. Deci (1975) does find that where rewards or payment are given in a non-controlling manner, not contingent on an individual’s

performance, their negative impact on intrinsic motivation is reduced. Extrinsic rewards may be useful for one off or short term performance but longer lasting effects can be produced through intrinsic motivation. These studies lead Deci and Ryan to suggest that an individual must feel that their actions are autonomous and self-determined in order to be intrinsically motivated, and that autonomy supportive environments lead to greater integration of tasks and regulations (Deci and Ryan 2000). This explains why carrot and stick motivation methods work short term, but in the long term may be counterproductive.

Competence

If workers feel that they are being challenged at an optimal level - their workload is neither boring nor beyond their capability - they will experience greater feelings of competence. They will feel that they are controlling their work, not that their work is controlling them (Gagne and Ryan 2005). Work environments with undue external control and regulation have been shown to shift the workers' perceived locus of causality. The workers become less interested in the work itself, but are focused on meeting the targets of the regulatory regime and avoiding subsequent penalties (Ryan and Connell 1989; Gagne and Deci 2005). Their feelings of competence are undermined as their output is picked over for faults. Their perception of autonomy is lowered; they are clearly not trusted to work without observation and control. The workers in this environment are likely to have either extrinsic or introjected motivation. Carrot and stick control measures give short term results but can result in 'gaming the system' - cheating and fraud (Gagne and Deci 2005). Deci (1975, 222) discusses controlling work systems: "if no one is looking, people tend not to do what they are supposed to do...often, in fact, people will satisfy their intrinsic need to be creative and competent by devising ways to beat the system...this may take the form of subtle sabotage and will certainly manifest itself in people trying to get the greatest rewards from the organisation while giving the least effort to the organisation."

Relatedness

Individuals must feel a secure connection with others and feel that they are accepted as a part of a group in order to be psychologically healthy (Deci and Ryan 2000). The need for belonging is met when working in a supportive environment with actions perceived as contributing to the benefit of the group (Riketta and Van Dick 2005). Internalisation of ('buying into') a task is fostered when relatedness is supported (Gagne and Deci 2005).

Quality Control Assessed Through the Framework of Self Determination Theory

The importance of organisational culture on the effectiveness of the implementation of quality control has been well reported (Dick *et al.*, 2008; Sampaio *et al.*, 2012; Fonseca 2015) however the effect that the application of quality control has on the autonomy, competence and relatedness of those implementing it has been overlooked. Quality control systems typically involve assessment and auditing; feedback; and a commitment to 'continual improvement.' (Fonseca 2015.) Literature regarding these aspects of quality control is examined through the lens of Self Determination theory.

Assessment and auditing

Self-determination theory suggests that autonomy supportive environments will enable workers to internalise rules and regulations that are meaningful for them (Gagne and Deci 2005). Inappropriate quality control could lead to audit and assessment rules and procedures which are seen to be excessive, time wasting, paper

pushing, meaningless, and distracting from the 'real' job. In this case, does the assessment process reduce the employee's perception of autonomy?

McCabe and Boyd (2004, 874) find extensive 'quality initiative fatigue' in construction organisations, reporting that "QA is seen as a bureaucratic imposition of the companies' lack of trust in them as people". Adopting standardised systems involves giving up an amount of control and freedom of choice (Brunsson 2000). Brunsson observes "Standardisation is often seen as an unwelcome, unnecessary, and harmful intrusion into a world of free, distinct individuals and organisations that are wise enough to decide for themselves..." (2000, 171). In construction, Abdul - Rahman (1997) finds considerable resistance to the imposition of quality management procedures where workers exploit 'loopholes' in quality management systems to their own benefit. Morgan (2006:38) observes that "social, cultural and political resistance" is mobilised against business programs which emphasise the technical system at the expense of all other considerations. Adler and Borys (1996) divide formalised regulation into two categories: enabling and coercive. Coercive bureaucracy is stifling, forcing compliance, limiting innovation, contributing to power asymmetry, job dissatisfaction and stress. Conversely, they argue that enabling regulation can support employees, becoming a useful tool to enable them to innovate, to increase their performance and job satisfaction levels.

In the financial world, David Weinberger (2007) suggests that managers are fooled by two lies: that systems fail due to individual performance, and that these individuals can be controlled, if only the right tools can be found. The superstition of 'accountabalism' leads to more forms, more tick boxes, more control, and "makes work no fun." Christ *et al.*, (2012) find that preventative control in the financial sphere reduces intrinsic motivation, which results in reduced performance of a task. Implementing ISO 9001 quality management forces workers to become 'part of the system,' categorising employees as a resource, alongside equipment and money (de Vries and Haverkamp 2015). Work environments focussed on external control and regulation shift the workers' perceived locus of causality to an external one. The workers become less interested in the work itself, but are focused on meeting targets and avoiding subsequent penalties (Ryan and Connell 1989; Gagne and Deci 2005). Perceptions of autonomy and competence are reduced and the temptation to game the system for individual benefit is increased (Gagne and Deci 2005). Researchers must stop taking quality management at face value as a 'good thing.' Sampaio *et al.*, (2012) controversially find that ISO 9001 accreditation may not increase a company's profitability, in fact implementation can be detrimental to a company's performance (Martinez Costa and Martinez-Lorente 2007).

Feedback

Inappropriate feedback may focus on the negative, find fault with performance and undermine an individual's sense of competence. Quality management systems focus on non-conformances in an attempt to reduce or eliminate non-compliant work (Burati *et al.*, 1992). Feedback is an "instrument of discipline" (de Vries and Haverkamp 2015: 21). Negative feedback diminishes intrinsic motivation (Deci *et al.*, 1973). Workers' feelings of competence are undermined as their output is picked over for faults, which decreases a subject's sense of competence and autonomy potentially leading to amotivation (Gagne and Deci 2005). Deci Koestner and Ryan's 1999 meta-analysis of self-determination research finds support for the proposition that even positive feedback reduces intrinsic motivation.

Hoffman (2015) looks at the balance between supervision and autonomy amongst medical trainees, constructing an argument that autonomy can be promoted within high risk environments that require close supervision. He advocates that supervision be seen as 'scaffolding' to enable learners to progress and become independent. This scaffolding is dependent on the individual situation, adaptable, temporary, and progressively removed as it is no longer required. Several factors impact on the benefits of feedback: the perceived honesty of the feedback and the credibility of the person giving it, if the challenge is realistic and achievable, and if it uses improvement against previous performance rather than comparison with colleagues (Henderlong and Lepper 2002). Ten Cate (2013) discusses feedback given to medical students. Although essential for problem correction, only 17% of students rated the feedback they were given as effective. 91% of those giving feedback felt that the feedback was effective, suggesting that feedback is much easier to give than to take. Ten Cate contends that receiving feedback tends to reduce feelings of competence, autonomy and relatedness. Competence, as feedback is usually structured to correct a deficiency. Autonomy, because the subject usually has not requested the feedback and has little say in its content and manner of delivery. Relatedness, because the subjects of the feedback are trying to prove their worth and be accepted as competent.

Continual improvement (or continued deception)

Unrealistic or unworkable targets for improvement generated by quality audits may undermine perceived competence and lead to deception and concealment. In software development, Ford and Sterman (2003) find that designers and managers display behaviour which is rational to the individual in the short term, but creates problems at a project and organisational level in the long term - that is, minimising, under reporting and covering up problems and defects. Covering up problems to buy time, in the hope that more problems generated by others occur in the meantime, is common practice according to this study. The reasons for the deception include to temporarily reduce rework, to avoid responsibility for mistakes and schedule slippage, maintain apparent programme and enhance job security and authority. Unrealistic expectations, for instance overly optimistic programme assumptions, create the perfect environment for deception. Van Kemenade *et al.*, (2011) find that willing implementation of quality system by university staff is contingent on several conditions being met, amongst them the fact that quality experts should not 'take over', that the rules are simple and that control is not a dominant aspect of the system. If these conditions are not met, they noted "dramaturgical compliance" -the staff will 'game' the system, pretend to comply and try to fool the auditor. This concurs with Stone Deci and Ryan's (2009) assertion that carrot and stick methods of control can lead to poor quality and deception. It is easy to cover up problems on a construction site, or correct them before they can be noted by senior management. Hence the root causes of such defects are not fixed (Arditi and Gunaydin 1997). Even where concealment may not be in play, construction managers tend to be optimistic when reporting progress, programme and quality in order to present a good 'face.' ISO 9001 quality management requires proof of 'continual improvement.' Under sometimes unrealistic expectations, it is likely that concealment, deception and exaggeration occur during quality audits; this is confirmed by the personal experience of the authors.

Lean construction and Total Quality Management (TQM)

Lean and TQM systems take the principle of quality and extend it across all business processes and systems (Burati *et al.*, 1992). Often the obsession with process and system has little consideration for people. Styhre (2001) suggests that empowering

workers is antithetical to Kaizen. In kaizen, the individual employee, his needs and goals are subjugated to the needs and goals of the organisation. Toyota profess a policy of 'respect for people.' However, (Green 1999, 1) suggests that lean techniques entail "control, exploitation and surveillance", and describes the human cost of lean production as increased stress under pressure to meet targets.

DISCUSSION

Why does this matter?

Van den Broeck *et al.*, (2010) link high levels of autonomous motivation to greater job satisfaction, enthusiasm, and lower levels of stress and burnout. Grabner and Speckbacher (2010) suggest that complex and unpredictable creative work requires intrinsic motivation, which can be undermined by inappropriate rules, standards and controls. Disengagement at work leads to lower productivity, profitability, job growth and share price (Cappelli 2015). Gagne and Deci (2005) connect environments which support autonomy, competence and relatedness (hence fostering internalised extrinsic motivation), with creativity, effective performance, positive work environments and psychological well-being. Commitment to an organisation increases in relation to an increase in autonomous motivation (Gagne *et al.*, 2004). Autonomous motivation is a powerful driver for performance enhancement in business, however this enhancement does not come at the expense of the workers; in fact, if harnessed it will generate a healthier, happier, and more satisfied workforce.

Claim for knowledge

This study examines issues of control and regulation from the perspective that people can exercise autonomy and free will, where autonomy is essential for psychological health, and influenced by the social context. The Foucauldian approach finds that autonomy is restricted by power systems and society, and looks at issues on a system and societal level. Self-determination theory looks at matters at the level of the individual and collates findings into a collective response.

Foucauldian analysis of control and regulation has considered identity regulation as a means of control (Alvesson and Willmott 2002); the 'reification' of systems of control (Hodgson and Cicmil 2007); and self-subjugation, 'performativity' and parody, in response to control (Hodgson, 2005). Clegg *et al.*, (2002) describe the tension between control and autonomy when managers 'freed' from bureaucracy found themselves more constrained than before with a self-generated set of controls. Attempts at identity control can lead to cynicism and can backfire (Alvesson and Willmott 2002). This study has found that overbearing quality control can impact on individuals' sense of autonomy, competence and relatedness. Its aim is to examine quality control and identify ways in which it might be changed to harness employees' autonomous motivation. This study and subsequent research must take care to avoid the pitfalls identified by the Foucauldian studies. It must avoid engendering the sort of initiatives described by Alvesson and Willmott (2002) as hype or intrusive regulation, or to further bind employees in constraining, self-constructed regulation (Clegg *et al.*, 2002) using self-actualisation as a cynical means to engineer compliance with corporate goals.

CONCLUSION

People matter. Workers and managers must be more than simply a cog in a machine. At the same time, construction management needs some control in order to deliver

projects safely in an unpredictable environment. A balance must be reached between too much control and too little.

The aim of this research is to examine the relationship between quality control and motivation through the framework of Self-determination Theory. The initial findings are that excessive control can undermine autonomous motivation by creating a perceived external locus of causality. Unworkable targets, unnecessary paperwork and irrelevant auditing can create an environment in which deception and concealment flourish. It is difficult to give effective feedback: if given in a controlling manner and focussed on faults it can diminish intrinsic motivation. These factors can undermine the worker's sense of autonomy, competence and relatedness leading to a reduction in autonomous motivation. Bureaucratic, controlling quality management with unrealistic expectations, excessive paperwork and negative feedback, can do more harm than good.

The hypothesis that quality control can demotivate workers and undermine their feelings of competence, autonomy and relatedness has been formed through the examination of existing self-determination, motivation, management and quality management literature. This critical review has explored the research question; however, a comprehensive answer is not possible within the constraints of this conference paper. In order to fully answer the research question and determine issues relating to motivation and quality control in construction, further research is needed. The impact of control on motivation in the construction industry should be studied through research in the field, in order to identify and implement improvements in practice to ensure that workers are productive, engaged and psychologically healthy.

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